

# **Superfund Performance Measures/Environmental Indicators**

NACEPT

06/19/02



# Performance Measure Challenges

- NACEPT Charge - Agency seeking feedback on measures currently under consideration or development.
- Construction completion is currently the key measure of progress for NPL sites.
  - ▶ This milestone only reflects the final outcome of years of analysis, cleanup work, and effort at NPL sites.
  - ▶ Construction completion neither measures nor characterizes the impacts of cleanup efforts on human health and the environment.
  - ▶ Construction completions do not correlate as milestones for non-NPL cleanups or with efforts at other hazardous waste cleanups.
- Resource Conservation and Recovery Act (RCRA) program developed indicators to gauge the impact of its efforts on human health and the environment.
  - ▶ The Superfund program has capitalized on RCRA's efforts and implemented similar indicators for Superfund work.

# Past or Current GPRA Measures

- Final Site Assessments Decisions
- Removal Response Actions
- Construction Completions
  - ▶ According to FR Volume 58, No. 29, March 2, 1993, "The CCL (construction completion list) is a compilation of sites presently or formerly on the NPL. Sites qualify for the CCL when:
    - ▶ (1) Any necessary physical construction is complete, whether or not final cleanup levels or other requirements have been achieved;
    - ▶ (2) EPA has determined that the response action should be limited to measures that do not involve construction; or
    - ▶ (3) The site qualifies for deletion from the NPL."
- Human Exposures Under Control (new for FY2002)
- Contaminated Groundwater Migration Under Control (new for FY2002)

# Performance Measure Challenges

- Measures should be:
  - ▶ Meaningful - on topics that the public cares about
  - ▶ Simple - expressed in simple and concise terms so that the public clearly understands what is being accomplished by the Superfund program
  - ▶ Integrated - related to performance goals and baseline statements in a way that demonstrates accomplishments and acknowledges data gaps
  - ▶ Linked - support the Agency's higher goals
  - ▶ Outcome oriented - indicate achievement of desired environmental benefit, not completion of tasks
  - ▶ Consistent - the same measures should be used across different programs, where possible

# Superfund Environmental Indicators

- Populations Protected
- Cleanup Technologies Applied
- Human Exposures Under Control
- Contaminated Groundwater Migration Under Control
- Population Risk Reduction\*
- Ecological Environmental Indicator\*

\* Under development

# Populations Protected

- This EI tracks
  - ▶ the number of hazardous waste sites where an action was taken to directly protect human health, and
  - ▶ the number of people protected as a result of the action
- Data collected for this EI shows that to date EPA has
  - ▶ supplied more than 515,000 people with alternative sources of drinking water to prevent them from consuming contaminated drinking water
  - ▶ relocated more than 30,000 people when contamination from hazardous waste sites has posed a severe threat
  - ▶ put deed restrictions and access restrictions in place at more than 1,400 hazardous waste sites
  - ▶ built fences and hired guards to restrict access to contamination found at more than 500 of the worst hazardous waste sites
- Data is collected at the cleanup action level and is cumulative to date for each removal or remedial action

# Cleanup Technologies Applied

- This EI tracks the volume of waste handled and the amount of contaminated materials that have been treated, stabilized, or removed through cleanup technologies
- Through February 2002, the Superfund program has addressed
  - ▶ 441 billion gallons of groundwater
  - ▶ 2.6 billion gallons of liquid waste
  - ▶ 2.4 billion gallons of surface water
  - ▶ 500 million cubic yards of soil
  - ▶ 13.3 million cubic yards of sediment
  - ▶ 178 million cubic yards of solid waste
- Data is collected at the cleanup action and media level and is cumulative to date for each removal or remedial action

# Human Exposures Under Control

- This EI describes whether adequate controls are in place to prevent current potential or actual human exposures to toxic wastes (at NPL sites) based on the current land-and groundwater use conditions
- A determination of "human exposures controlled" indicates that protective controls are in place
  - ▶ based on all information known on contaminants to soil, groundwater, surface/water and air
  - ▶ no media are known or suspected to be contaminated above appropriately protective levels
  - ▶ actual or potential human exposure is not expected or is within acceptable limits under current land and groundwater use conditions

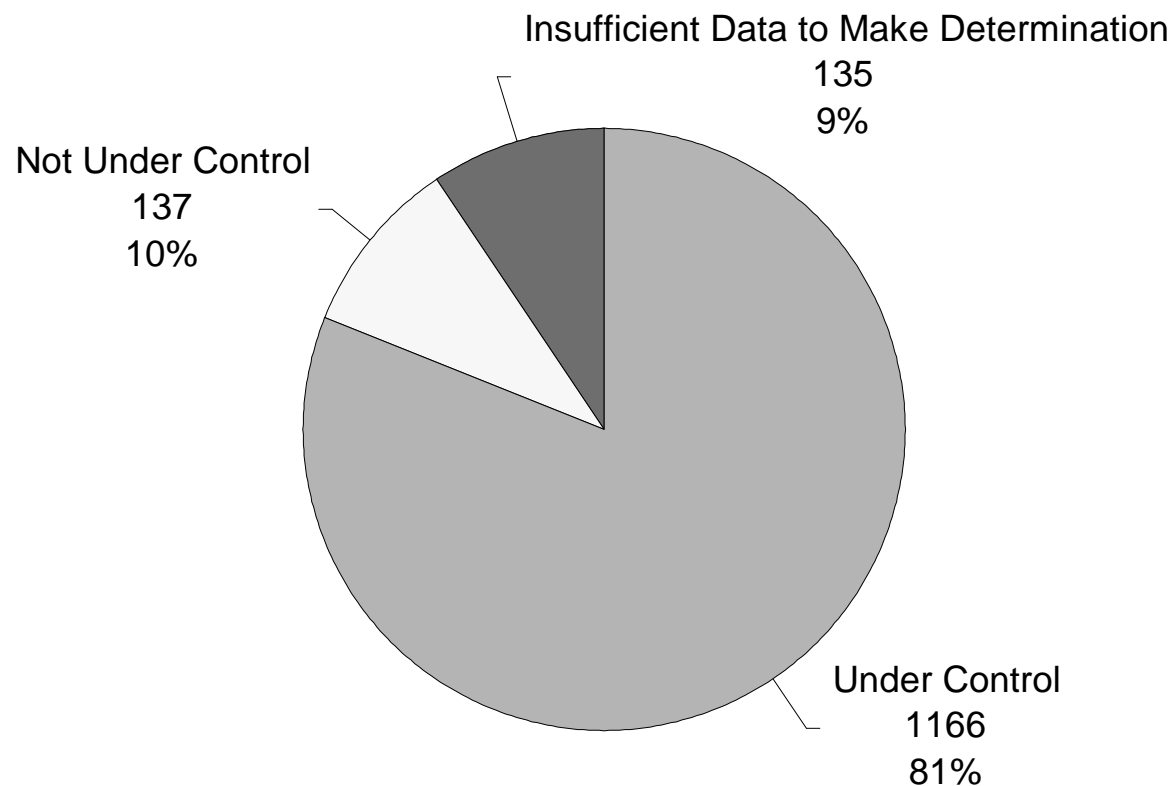
# Contaminated Groundwater Migration Under Control

- This EI describes whether migrating contaminated groundwater is being controlled through engineered remedies or natural processes
- A determination of "groundwater releases controlled" indicates that protective controls are in place to prevent unacceptable human exposure under current land and groundwater uses
  - ▶ based on all information on known and suspected releases to groundwater
  - ▶ groundwater is not known or reasonably suspected to be contaminated above protective levels
  - ▶ migration of contaminated groundwater is stabilized

# Human Exposure and Groundwater Indicators

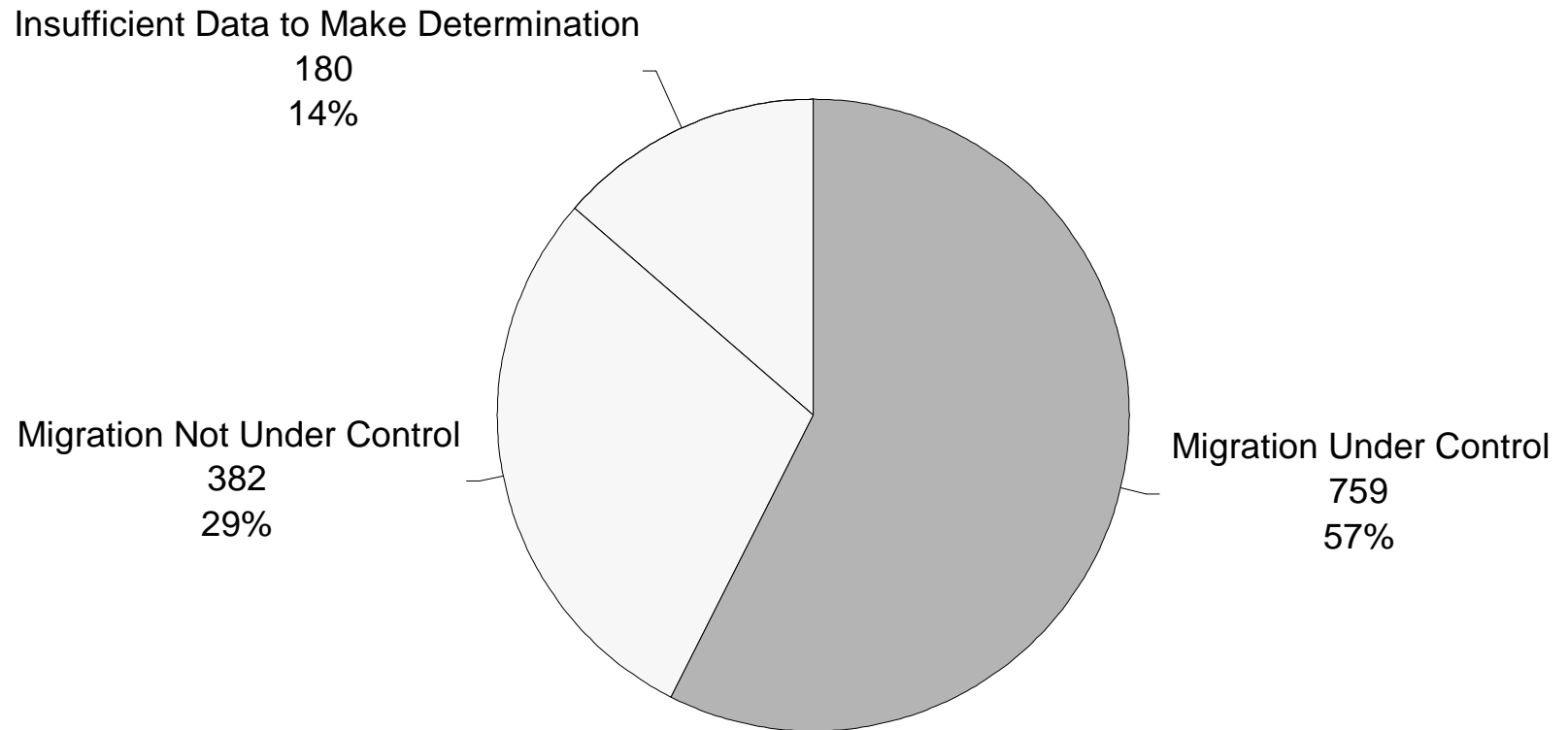
- GPRA measure
  - ▶ FY2002 - key measure w/ no target
  - ▶ FY2003 - key measure w/ target
- Data is collected at the site level
- Based on RCRA EIs

# Potential or Actual Human Exposures Under Control



■ Under Control    □ Not Under Control    ■ Insufficient Data to Make Determination

# Contaminated Groundwater Migration Under Control



■ Migration Under Control   ■ Migration Not Under Control   ■ Insufficient Data to Make Determination

# Population Risk Reduction

- The goal of this indicator is to give a reasonable estimate of the population that will experience reduced risks because of Superfund actions
- This indicator is under development with final framework anticipated by EOY 2002
- Designed to communicate the incremental progress achieved in reducing human health risks to populations at or near Superfund sites as a result of Superfund cleanup actions
- By assigning sites to a "risk reduction category" and calculating the population potentially at risk from a site, this indicator will describe
  - ▶ populations whose risks are partially reduced
  - ▶ populations whose current risks are all controlled
  - ▶ populations whose current and future risks are all controlled

# Population Risk Reduction

## ■ Framework

- ▶ Sites are assigned to a risk reduction category based on cleanup status at the site
  - Partial risk reduction
  - Current risks controlled
  - Current and future risks controlled
- ▶ Populations are estimated for each site by
  - Using different distance rings to determine what population was susceptible to exposure to any given site depending on which media at a site is contaminated (eg. maximum distance for soil = 1 mile)
  - Applying a weighting factor to adjust for how close to a site populations live

# Ecological Environmental Indicator

- Under development with final framework expected EOY 2002
- Joint project of OSW and OERR
- Current version is a five step ecological planning/characterization/ remediation process
  - ▶ Planning/management goals determined
  - ▶ Ecological risk characterization completed
  - ▶ Ecological remediation goals determined
  - ▶ Remediation initiated
  - ▶ Protection of the environment

# Ecological Environmental Indicator

- Goals and Protection of Environment quantified:
  - ▶ Terrestrial **acres** (not covered as 404 wetland)
  - ▶ Wetland **acres** (404 definition)
  - ▶ Aquatic
    - Sediment **acres**
    - Water column
      - Stream/estuary **miles**
      - Lake, bay, or estuary **acres or volume**
    - Stream bank, shoreline, coastline **miles**

# **Additional Indicators/Measures**

- Site/Facility Cleanup Life Cycle
- Reuse/Redevelopment